EUROPA Examples

A simple EUROPA example is described on the Quick Start page. Here are some more advanced examples that can serve as starting points for your own model, or just to learn more about what EUROPA can do in different domains. Some of these examples are described in depth; the code for all of these and other examples can be found here. You can build them and run them yourself just by running 'ant' (to run the Java version) or 'jam' (to run the C++ version) in the corresponding directory.

Constraint Programming

- **NQueens** : One of the workhorses of constraint programming. This problem consists of placing N queens on a board chess in such a way that they don't attack each other. The NDDL implementation provided here includes a UI where you can click on a chess board to move the the queens around and see the constraint violations that EUROPA computes by moving the mouse over each queen. It also provides a simple Tabu Search solver which briefly illustrates how you can build your own solver on top of EUROPA.

Scheduling

- **RCPSP** (Resource Constrained Project Scheduling Problem) : A well known problem in the OR community, consists of scheduling a set of activities with temporal and resource usage constraints. Typically, total project duration is minimized. The NDDL implementation provided here can solve RCPSP problem instances generated by ProGen/max. THis example currently uses the built-in Solver, in the near future we will provide a different solver that can be more competitive for scheduling applications.

Planning

- **Shopping**: One way to implement the shopping example discussed in Russel and Norvig's AI textbook (Russel/Norvig 1995). They describe the problem as "Get a quart of milk and a bunch of bananas and a variable-speed cordless drill" and refer to it throughout chapter 11 (Planning). The example NDDL implementation provided here is lightly commented and should be self-explanatory.
- **Rover**: An in-depth tutorial describes how to design and implement a robotic (Mars Rover) planning problem. Many of the example snippets on the NDDL Reference page originate in this example.